

## PET bottle regeneration plant

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**Year of commitment** : 2014

**CO2 Impact** : Based on a production of 50 000t recycled PET : reduction of GHG emission = -82500 t CO2e/an



500 000 €

**Circular economy and waste management** : Industrial Ecology, Optimization of resources, Optical separation, Chemical recycling

### GENERAL INFORMATION

#### Context

Plastic is everywhere in Mexico. The country is the third largest consumer of PET. However, waste treatment processes are not well adapted and plastic is released into the environment or landfilled. Mexico City has some of the biggest open landfill sites in the world.

#### Project

One of the world's largest recyclers of food-contact-grade PET opened in 2006 in Toluca, around 60km from Mexico. In 2014, 75 000 tons of PET were collected resulting in a production of 50 000 tons of recycled plastic.

Optical sorting equipment was provided by Pellenc ST and installed in 2010. And thanks to the satisfactory return on investment, PETStar has decided to double its sorting line with the latest generation of Pellenc machines.

### Greenhouse gas challenges

The plant was built so as to treat plastic waste generated by Mexico and to avoid landfilling. But it also reduces the carbon footprint of bottles made with recycled plastic. We only need 7MJ/kg to produce recycled PET against 84MJ/kg for virgin PET.

### Case study

A. 50 000 tons/year virgin PET production

System boundaries :

- Emissions from the oil extraction to the pellets production

Datas used for calculations :

- One ton of virgin PET production : 2,15 t CO<sub>2</sub>e/produced ton (source : Plastics Europe)

**+107 500t CO<sub>2</sub>e/year**

### B. 50 000 tons/year recycled PET production

System boundaries :

- Waste collection and transport to the facility

- Internal transport by freight elevator

- Facilities, equipment and vehicles amortizations

Datas used for calculations :

- Actual consumption data

- Basic factors of "Base Carbone"

**+25 000 CO<sub>2</sub>e/year**

**GHG emissions reduction : 25 000 - 107 500 = 82 500t CO<sub>2</sub>e/year**

## Progress Status

Delivered

## Data Reliability

Self-declared

## Funding Type

Private

## Website Enterprise / Infrastructure

<http://www.petstar.mx/empresa>

<http://www.construction21.org/france/data/exports/pdf/.pdf>

## Sustainable Development

Attractiveness :

Well Being :

Social Cohesion : Creation of a museum with educational tools for schools (<http://www.petstar.mx/museo>)

Preservation / Environmental Improvement :

Responsible use of resources : Petstar optimizes resources giving to waste a second life

## Testimony / Feedback

Video

## Governance

Petstar

Holder Type : Private Company

Builder Type : Other

Manager / Dealer Type : Private

Business Model : Modèle économique : PET bottles recycling plant

## Sustainable Solutions

Optical sorting machine : Mistral

Description : Pellenc ST optical sorters uses near infrared spectroscopy to separate waste strams by material and/or color

- Circular economy
- Waste management

Company (es) Website :



## Contest

### Building candidate in the category



Users' Choice



Sustainable Infrastructure Grand Prize

